

## APPENDIX C

### RAIL ROUTES TO THE PROPOSED PFSF SITE

As part of the evaluation of potential impacts in this draft environmental impact statement (DEIS), an analysis was performed using the INTERLINE routing code and the RADTRAN risk assessment code (see Appendix D) to determine the transportation impacts associated with the rail shipment of commercial spent nuclear fuel (SNF). As described in this appendix, the INTERLINE computer code model was used to select rail routes and analyze the transportation scenarios.

Because of the size and weight of the SNF shipping casks included in the license application for the proposed Private Fuel Storage Facility (PFSF), it is assumed that all SNF will be shipped from existing reactor sites to the PFSF by rail. While shipment of SNF by truck over highways is possible, the size of the proposed shipping cask system to be used for the proposed facility makes the use of rail transportation essential for the transport of SNF.

#### C.1 Identification and Selection of Routes

The INTERLINE computer code was used to select routes and analyze the transportation scenarios (Johnson 1993). The INTERLINE model is designed to simulate routes on the rail system in the United States, and its database includes all railroads in the country. Several different routing options are available in the INTERLINE program, including "optimal" routes and alternative routing. The model can be modified to change routing parameters and interchange penalties (as explained below) between different railroad companies. Additional detailed routing analysis can be performed by blocking individual or sets of rail segments or intersections contained in the database.

The INTERLINE code selects routes based on several factors. The model maximizes the use of rail lines that are used for higher density traffic. If several railroads are available, the model minimizes the number of railroads used in the route. This is accomplished by placing a penalty for interchanges between railroad systems. Also, the originating railroad is preferentially used to maximize the distance traveled on their system.

The INTERLINE code was used to select routes accessing the proposed PFSF site in Skull Valley, Utah, as well as an alternate site in Wyoming. Section C.2 describes the routes in Utah, while Section C.3 discusses the Wyoming routes. Output pages from the INTERLINE code for these routes are provided in Sections C.4 and C.5. These output pages supply additional information including a listing of each rail route, as well as mileage and population density information.

In addition to the routes near the Skull Valley and Wyoming sites, a set of cross-country routes available from the Maine Yankee nuclear reactor (in Maine) was also identified. These cross-country routes are discussed in Section C.2. The INTERLINE output for the routes is displayed in Sections C.7 to C.13, which include cross-country routes to both Skull Valley and Wyoming, as well as the routes away from these locations toward the site of the proposed national repository at Yucca Mountain, Nevada.

## C.2 Rail Route From Maine Yankee to Skull Valley, Utah

For the purposes of this study, a representative route was chosen for analysis rather than analyzing all routes between every reactor and the Skull Valley site. The Maine Yankee reactor (in Maine) was selected for this analysis because it is one of the most distant reactors from the proposed PFSF. This route is shown in Figure C.1, is 4,476 km (2,781 miles) long, and involves five railroad companies. The Maine Coast Railroad (reporting mark MC) provides service to the Maine Yankee site and would transport the SNF shipment from the site to Brunswick, Maine, a distance of 50 km (31 miles). Traffic density on the MC is very low, less than 1 million gross ton-miles per mile (MGTM) annually, and this line is single track with no signal system. At Brunswick the shipment is transferred from MC to the ST Rail System (reporting mark ST). The ST Rail System would move the shipment for 472 km (293 miles) from Brunswick through southwestern Maine, southeastern New Hampshire, northern Massachusetts, to Mechanicville, New York, north of Albany. From Brunswick to near Portland, Maine, traffic density is less than 1 MGTM and the line is single track with no signals. From near Portland to Lawrence, Massachusetts, traffic density is between 5 to 10 MGTM and the line is single track with centralized traffic control (CTC) signals. Between Lawrence and Mechanicville, traffic density is 10 to 20 MGTM and the line is single track with CTC signals. At Mechanicville, the shipment would be transferred from ST to the St. Lawrence and Hudson operating subsidiary of the Canadian Pacific Railway (reporting mark CPRS). CPRS would move the shipment for 568 km (353 miles) between Mechanicville and Buffalo, New York, where the shipment would be transferred to the Norfolk Southern Railway (reporting mark NS). From Mechanicville to Binghamton, New York, traffic density is 10 to 20 MGTM and the line is single track with automatic block system (ABS) signals. The portion of the route between Binghamton to Buffalo has a traffic density of 20 to 30 MGTM and is primarily single track with a mixture of ABS and CTC signals. NS would handle the shipment for 851 km (529 miles) from Buffalo to Chicago where the shipment would be interchanged to the final carrier, the Union Pacific Railroad (reporting mark UP). The NS line between Buffalo and Chicago handles over 40 MGTM and is a mixture of single and double track with CTC signals. The UP would handle the shipment for 2,536 km (1,576 miles) from Chicago, through Illinois, Iowa, Nebraska, a short segment in Colorado, Wyoming, to the Skull Valley site in Utah. Traffic density from Chicago to west of Salt Lake City is over 40 MGTM. This segment of the route varies from single to double to triple track and signaling is either CTC or ABS. From Garfield, west of Salt Lake City to the spur to the Skull Valley site, traffic density is between 30 and 40 MGTM and the line is single track with CTC signals. The new 51-km (32-mile) rail line to the Skull Valley site would be single track with no signals and would have less than 1 MGTM annually.

**Routes between the proposed PFSF and the Permanent National Repository.** After the proposed repository at Yucca Mountain, Nevada, opens, SNF stored at the Skull Valley site will be transported to the repository. The Department of Energy has examined various options to receive all shipments of SNF at Yucca Mountain ranging from the construction of a new rail line to the site to heavy hauling casks from intermodal facilities along the existing UP mainline in Nevada. Because DOE has not made a decision yet, this study only examines the shipment of SNF from the Skull Valley site to the Utah-Nevada state line.

If a new rail line is constructed to the Skull Valley site, shipments of SNF will move entirely by rail from Skull Valley to the Utah-Nevada state line in southwestern Utah (see Figure C.2). This route is 569 km (354 miles) long. The first 51 km (32 miles) of the route is on the rail line from the Skull Valley site to the UP mainline at Skunk Ridge. From Skunk Ridge, the route follows the UP Railroad east to Garfield and then south on another UP line through Lynndyl, Utah, to the Nevada state line

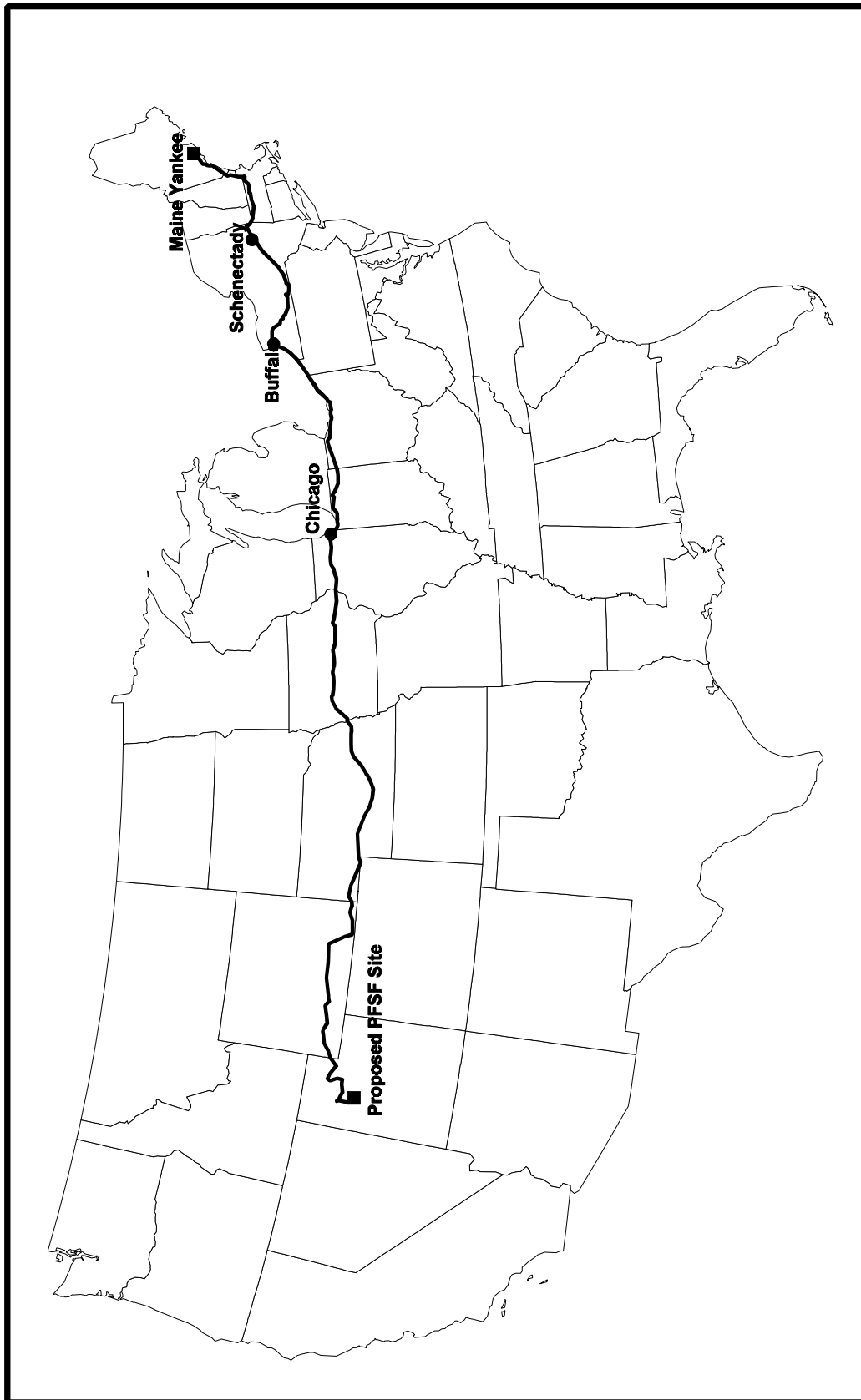


Figure C.1. Rail route from the Maine Yankee nuclear power plant to Skull Valley, Utah.

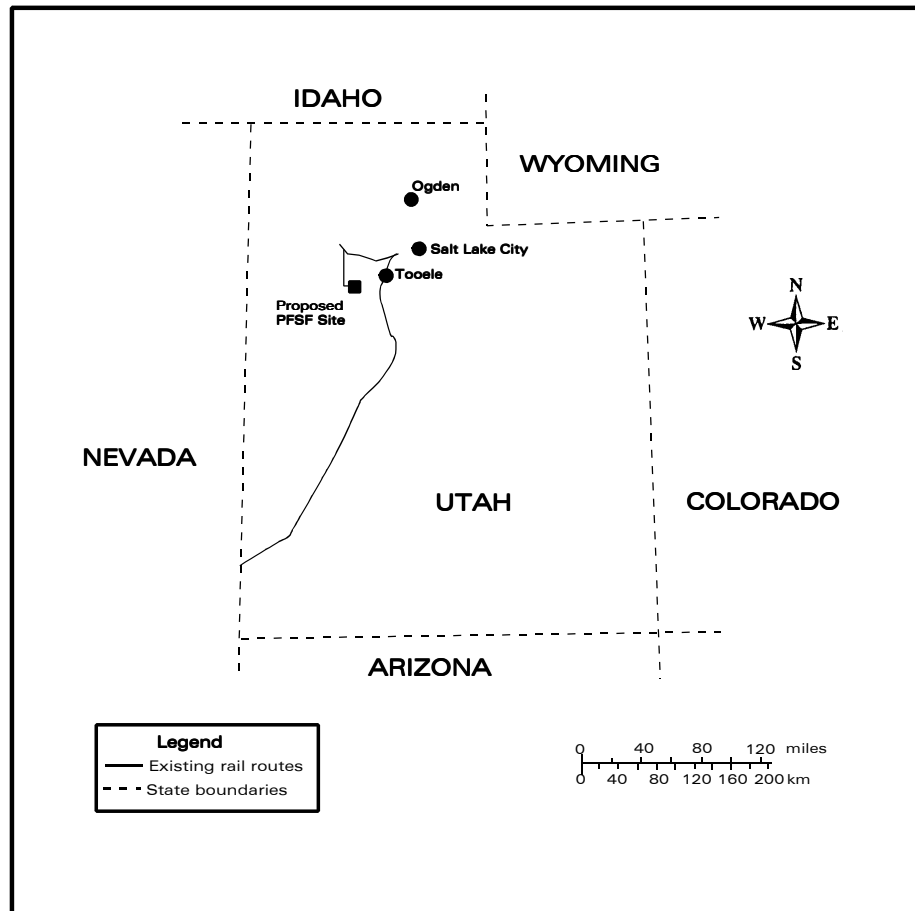


Figure C.2. Rail route for shipping SNF from Skull Valley, Utah, toward a national repository.

near at a siding named Uvada. Traffic density from Skunk Ridge to Lynndyl is between 30 and 40 MGTM and from Lynndyl to the Nevada state line traffic density increases to over 40 MGTM. This entire route is single track with CTC signaling.

### C.3 Routes Near Skull Valley, Utah

Currently, there is no direct rail access to the proposed ISFSI site. This analysis assumes that a new 51-km (32-mile) rail line would be constructed from Skunk Ridge (located northeast of the proposed PFSF site and near the Low passing siding) to the proposed ISFSI site. The Union Pacific Railroad owns the existing rail line at Skunk Ridge.

For this study, rail access routes and route lengths were selected to cross the Utah state borders, where possible, and to accommodate convergence points from rail lines farther away from the proposed PFSF site. Five different access routes potentially could be used to reach the proposed site in Skull Valley, Utah (see Figure C.3). The actual distance of the identified routes varies from 330 km (220 miles) to 385 km (239 miles) due to the structure of the INTERLINE rail routing network. Note in Figure C.3 that the Skunk Ridge location may not appear to match where the proposed rail line would leave the Union Pacific main line. The new rail line does intersect the main line at the Skunk Ridge location, but the new line closely parallels the main line for the first several miles. This is not visible in the figure due to the scale of this map.

The characteristics of each of the five routes, as described below, include information on the length of the route, the number of main tracks, the signaling of the line, and the volume of traffic density. These factors provide an indication of the capacity that each line segment can handle. Signals on railroads provide an additional margin of safety and greatly influence the number of trains that can operate over a line. Three general types of rail signaling are used in the United States. CTC is the most advanced type of signaling. With CTC, the dispatcher can control operations over a line with signal indications, and movements into passing sidings are assisted by remote controlled switches operated by the dispatcher. ABS is considerably less sophisticated than CTC. With ABS signals, the dispatcher controls train movements with orders provided by radio communication, and block signals provide indications to train crews whether another train is occupying a nearby rail segment. The third type of signal is no signal system. Rail operations are totally dependent upon radio communications between the train crew and the dispatcher.

#### C.3.1 Route to Skull Valley from Granger, Wyoming

Due the number of nuclear utilities in the eastern United States, most SNF shipments will approach the proposed Skull Valley site via the route through Granger, Wyoming (see Figure C.3). This route follows the Union Pacific Railroad from Wyoming into northern Utah, passing through the larger cities of Ogden and Salt Lake City. From Salt Lake City, the route continues west through Garfield to a location called Skunk Ridge, where a new siding and new rail line would be constructed to reach the proposed PFSF site. The total length of this route from Granger is 357 km (222 miles). From Granger through Garfield, the Union Pacific is a dual-track mainline with a traffic density of over 40 MGTM annually. Most of the line between Granger and Ogden has ABS signals and the remainder of the route to Skunk Ridge has CTC signals. West of Garfield to the Skunk Ridge location, the Union Pacific is a single track mainline with a traffic density of 30 to 40 MGTM annually.

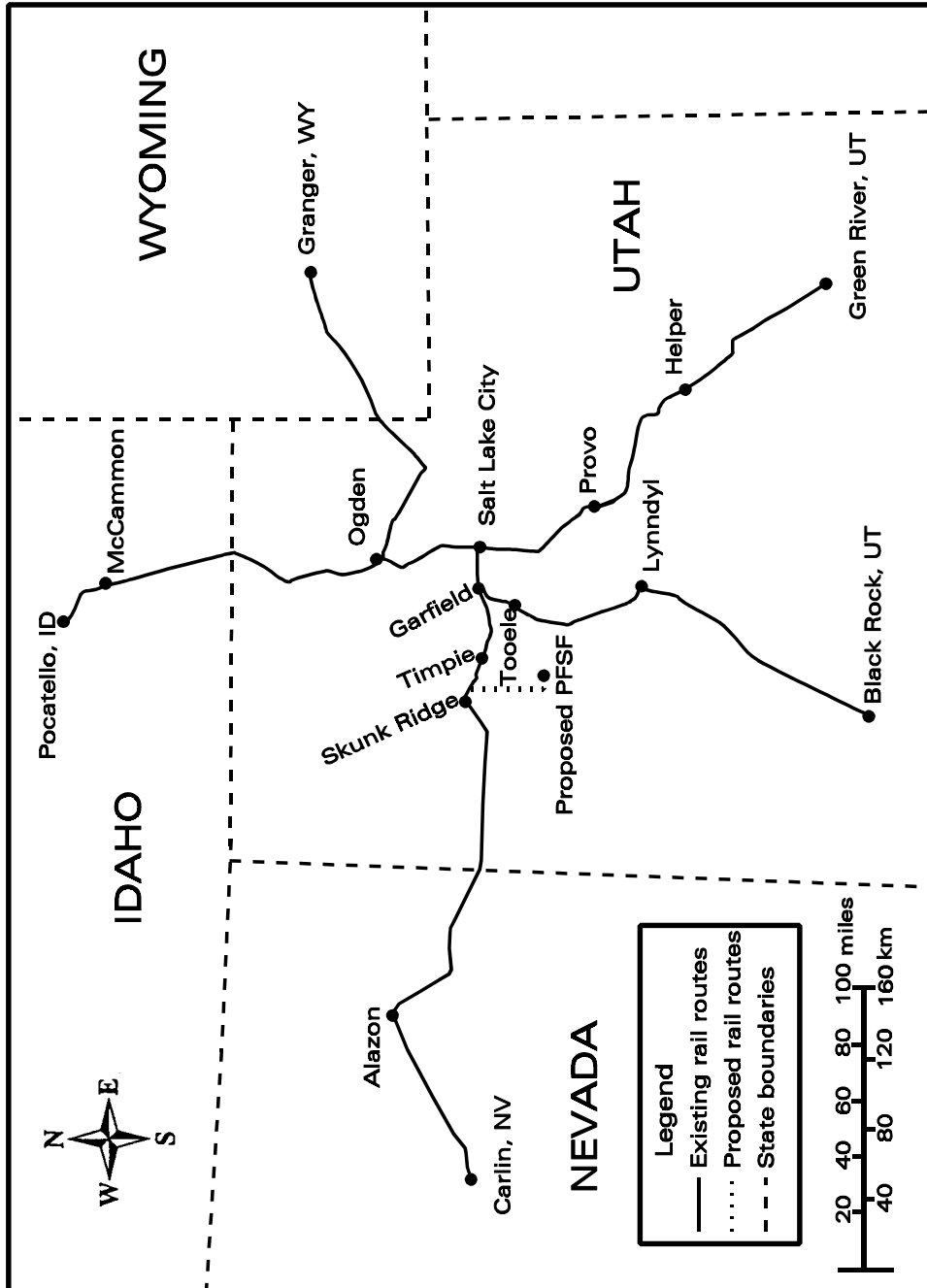


Figure C.3. Potential rail routes for shipping spent nuclear fuel to Skull Valley, Utah.

### C.3.2 Route to Skull Valley from Green River, Utah

The access route through Green River, Utah, represents the second smallest potential number of shipments of SNF. Reactor locations in Louisiana and Texas could use this route to access the proposed site in Skull Valley. This route has a total length of 380 km (236 miles) and extends from Green River through Provo to Salt Lake City. West of Salt Lake City, the route follows the same path described above to Skunk Ridge, where it would connect with the new rail line to the proposed facility. The entire route from Green River to Skunk Ridge is CTC signaled territory owned by the Union Pacific railroad. The number of tracks varies over this route. Single track exists from Green River to Helper (approximately midway between Green River and Provo), from Provo to Salt Lake City, and from Garfield to Skunk Ridge. Two main tracks exist between Helper and Provo and from Salt Lake City to Garfield.

### C.3.3 Route to Skull Valley from Black Rock, Utah

Reactors in Arizona and southern California could access the Skull Valley site from Black Rock, Utah. This route has a length of 330 km (205 miles) and is entirely owned by the Union Pacific railroad. The route extends from Black Rock to Garfield, then west to Skunk Ridge, where it would connect with the new rail line to the proposed facility. This entire route is single track with CTC signaling. The first 114 km (71 miles) of the route between Black Rock and Lynndyl has traffic density over 40 MGTM. The remainder of the route from Lynndyl to Skunk Ridge has a traffic density between 30 and 40 MGTM. This route could also be used to ship SNF away from the Skunk Ridge ISFSI toward the proposed national repository.

### C.3.4 Route to Skull Valley from Carlin, Nevada

The route through Carlin, Nevada, could be used to ship SNF from reactors located in northern California to the Skull Valley site. The length of this route between Carlin and the proposed ISFSI is 385 km (239 miles) and is entirely owned by the Union Pacific railroad. The entire route from Carlin to Skunk Ridge is single track and has a traffic density between 30 and 40 MGTM. From Carlin to Alazon, the line has ABS signals. The remainder of the route, between Alazon to Skunk Ridge, has CTC signals.

### C.3.5 Route to Skull Valley from Black Rock, Utah

The fifth and final access route to north-central Utah extends from Pocatello, Idaho, through Ogden and Salt Lake City to the proposed Skull Valley site. Reactors located in Oregon and Washington could use this route, which is 346 km (215 miles) long. Track characteristics vary for this route. Between Pocatello and McCammon, Idaho, the trackage is CTC signaled dual track with a traffic density over 40 MGTM. From McCammon to Ogden, Utah, the trackage is single track with ABS signals and a traffic density between 10 and 20 MGTM. Between Ogden and Garfield the trackage is CTC dual track with a traffic density over 40 MGTM. The final mainline segment of this route, between Garfield and Skunk Ridge is CTC single track with a traffic density between 30 and 40 MGTM.

## C.4 Routes Near the Wyoming Site

An alternative site for the proposed facility in Fremont County, Wyoming, between the towns of Shoshoni and Bonneville, is also examined in this EIS. This site is located approximately 3 km (2 miles) from the Burlington Northern Santa Fe (BNSF) Railway mainline that runs through central Wyoming.

The INTERLINE rail routing model was used to examine possible rail access routes to the Wyoming site. As with the access routes identified for the Utah site, the actual distances of the routes to the Wyoming site vary [from 350 km (220 miles) to 400 km (250 miles)] due to the structure of the INTERLINE rail routing network. Four different access routes could be used to service the alternative site in Wyoming. These rail routes are shown in Figure C.4.

### C.4.1 Route to Fremont County from Crandall, Wyoming

The access route from Crandall, Wyoming, to the alternative site near Bonneville could be used by several commercial nuclear reactors in the Midwest that are served by the Union Pacific Railroad. This 350-km (220-mile) route would use the Union Pacific Railroad from Crandall to Shawnee Junction, Wyoming, where Union Pacific Railroad has trackage rights on the BNSF to Casper, Wyoming. At Casper, the traffic would be interchanged to the BNSF for the remainder of the route to Bonneville, Wyoming. Between Crandall and Shawnee Junction, the Union Pacific line alternates between single and dual track sections, has CTC signaling, and has a traffic density of over 40 MGTM. From Shawnee Junction to Orin, the line is single track, has CTC signaling, and also has a traffic density over 40 MGTM. The final portion of this route from Orin to Bonneville is single track with no signaling and has a traffic density between 10 and 20 MGTM.

### C.4.2 Route to Fremont County from Mitchell, Nebraska

Shipments of SNF from most commercial nuclear reactors in the eastern United States would access the alternative site near Bonneville via the route through Mitchell, Nebraska. This route follows the BNSF from Mitchell, near the Nebraska-Wyoming border to Bonneville, Wyoming, and is 400 km (250 miles) long. From Mitchell to Orin, Wyoming, the rail line is single track with CTC signals and has a traffic density over 40 MGTM. Between Orin and Bonneville, the line is single track with no signaling and has a traffic density between 10 and 20 MGTM.

### C.4.3 Route to Fremont County from Gibson, Wyoming

SNF from southwestern states, including California through Texas, could use the Gibson, Wyoming, access route. This 370-km (230-mile) route follows the BNSF Railway from Gibson to Bonneville. From Gibson to Wendover, Wyoming, and from Orin to Bonneville, the rail line is single track with no signals and has a traffic density between 10 and 20 MGTM. The portion of the route between Wendover and Orin is single track with CTC signals and has a traffic density of over 40 MGTM.

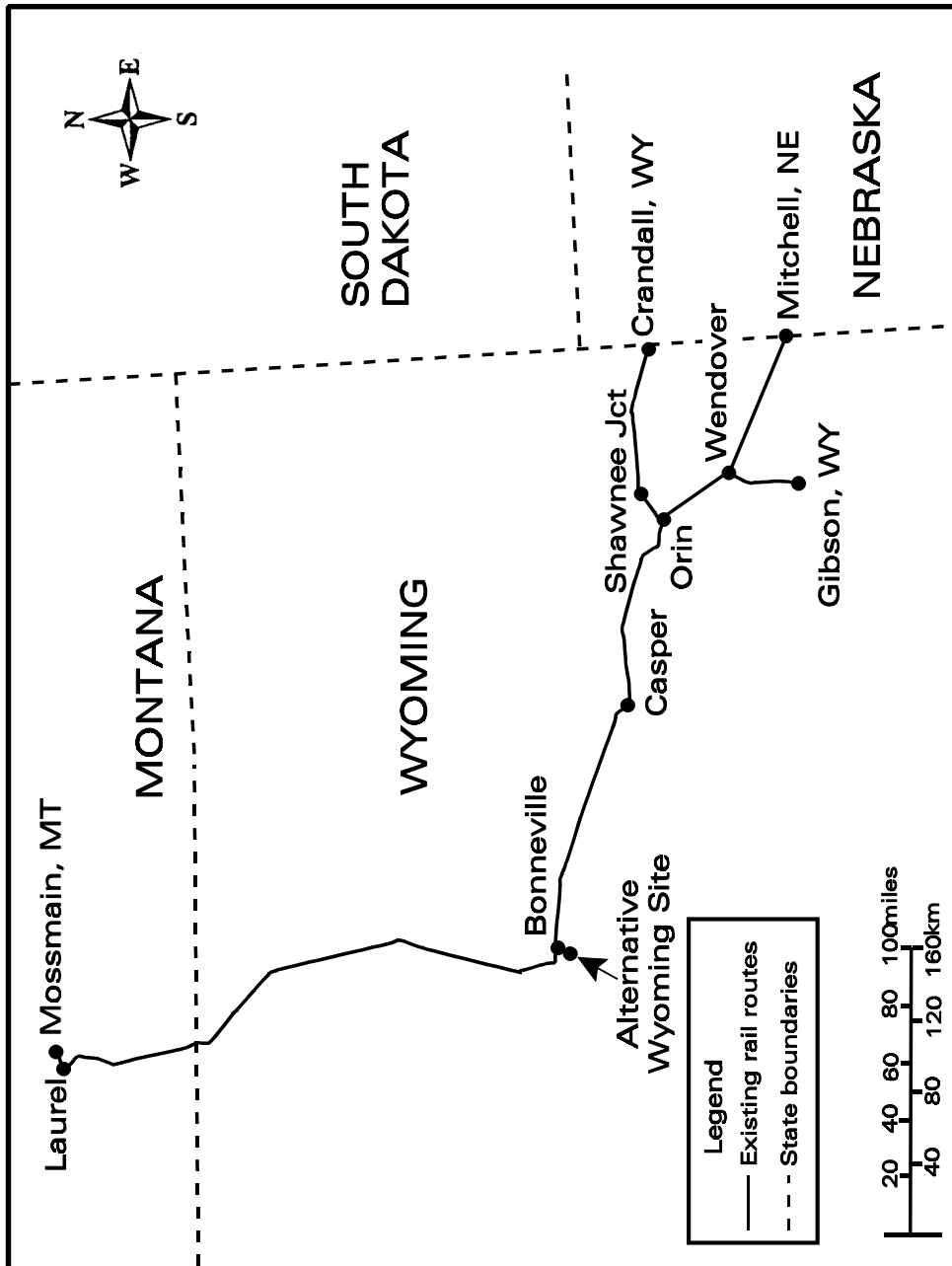


Figure C.4. Potential rail routes for shipping spent nuclear fuel to Fremont County, Wyoming.

#### **C.4.4 Route to Fremont County from Mossmain, Montana**

The fourth and final access route to the alternative site near Bonneville is from Mossmain, Montana, to Bonneville. This route could be used by commercial nuclear reactors located in the Pacific Northwest, as well as one of the reactors in Minnesota. BNSF would transport the shipment over this 365-km (227-mile) route. From Mossmain to Laurel, Montana, the route is on single track, ABS signaled line owned by the Montana Rail Link company. This segment has a traffic density between 20 and 30 MGTM. The remainder of the route from Laurel to Bonneville is on BNSF-owned line that is single track with no signaling and has a traffic density between 10 and 20 MGTM.

## C.5 Interline Output for Routes Near the Skull Valley, Utah, Site

### C.5.1 Route Between Granger, Wyoming and the Utah PFSF Site

ROUTE FROM:	UP	13494-GRANGER	WY	LENGTH:	275.7 MILES
TO:	UP	16153-PFSF	UT	POTENTIAL:	297.36

MILEAGE SUMMARY BY RAILROAD		A-M	B-M	A-BR	B-BR	OTHER
UP	275.7	243.7	.0	.0	32.0	.0
TOTAL	275.7	243.7	.0	.0	32.0	.0

MILEAGE SUMMARY BY STATE	
206.1-UT	69.6-WY

RR	NODE	STATE	DIST
UP	13494-GRANGER	WY	0.
UP	13568-OGDEN	UT	143.
UP	13595-SALT LAKE CITY	UT	179.
UP	13594-GARFIELD	UT	191.
UP	16153-PFSF	UT	276.

POPULATION DENSITY FROM:	UP	13494-GRANGER	WY
TO:	UP	16153-PFSF	UT

----- MILEAGE WITHIN DENSITY LEVELS -----												
	<0.0	5.0	22.7	59.7	139	326	821	1861	3326	5815		
St Miles	0	-5.0	-22.7	-59.7	-139	-326	-821	-1861	-3326	-5815	-9996	>9996

UT	206.1	67.5	76.3	26.7	2.9	2.4	2.7	4.8	7.0	7.2	6.4	2.0	.2
WY	69.6	20.6	48.5	.5	.0	.0	.0	.0	.0	.0	.0	.0	.0

Totals	275.7	88.1	124.8	27.2	2.9	2.4	2.7	4.8	7.0	7.2	6.4	2.0	.2
Percentages	31.9	45.3	9.9	1.1	.9	1.0	1.7	2.6	2.6	2.3	.7	.1	
Basis:	1990 Census data												

RADTRAN Input Data	Rural	Suburban	Urban
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Weighted Population			
People/sq. mi.	4.3	1448.1	5461.4
People/sq. km.	1.6	559.1	2108.6

Distance				Total
Miles	245.4	21.7	8.6	275.7
Kilometers	395.0	34.9	13.9	443.7
Percentage	89.0	7.9	3.1	

Basis (people/sq. mi.)	<139	139-3326	>3326
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Note: Due to rounding, the sum of the mileages in the individual population categories may not equal the total mileage shown on this report.

### C.5.2 Route Between Green River, Utah and the Utah PFSF Site

ROUTE FROM: UP 13635-GREEN RIVER UT LENGTH: 290.3 MILES  
 TO: UP 16153-PFSF UT POTENTIAL: 309.04

MILEAGE SUMMARY BY RAILROAD

	UP	A-M	B-M	A-BR	B-BR	OTHER
	290.3	258.3	.0	.0	32.0	.0
TOTAL	290.3	258.3	.0	.0	32.0	.0

MILEAGE SUMMARY BY STATE  
 290.3-UT

RR	NODE	STATE	DIST
UP	13635-GREEN RIVER	UT	0.
UP	13613-THISTLE	UT	130.
UP	13611-SPRINGVILLE	UT	144.
UP	13610-PROVO	UT	149.
UP	13609-GENEVA	UT	156.
UP	13593-PALLAS	UT	186.
UP	13595-SALT LAKE CITY	UT	193.
UP	13594-GARFIELD	UT	205.
UP	16153-PFSF	UT	290.

POPULATION DENSITY FROM: UP 13635-GREEN RIVER UT  
 TO: UP 16153-PFSF UT

----- MILEAGE WITHIN DENSITY LEVELS -----

	<0.0	5.0	22.7	59.7	139	326	821	1861	3326	5815
St Miles	0	-5.0	-22.7	-59.7	-139	-326	-821	-1861	-3326	-5815
UT	290.3	117.8	101.6	15.3	8.1	7.8	7.0	8.9	13.2	5.9
Totals	290.3	117.8	101.6	15.3	8.1	7.8	7.0	8.9	13.2	5.9
Percentages	40.6	35.0	5.3	2.8	2.7	2.4	3.1	4.5	2.0	1.3
Basis:	1990 Census data									

RADTRAN Input Data Rural Suburban Urban

Weighted Population

People/sq. mi.	6.3	1135.0	5304.1
People/sq. km.	2.4	438.2	2047.9

Distance

			Total
Miles	250.5	35.0	4.8
Kilometers	403.1	56.3	7.8
Percentage	86.3	12.1	1.7

Basis (people/sq. mi.) <139 139-3326 >3326

Note: Due to rounding, the sum of the mileages in the individual population categories may not equal the total mileage shown on this report.

### C.5.3 Route Between Black Rock, Utah and the Utah PFSF Site

ROUTE FROM: UP 13619-BLACK ROCK UT LENGTH: 259.0 MILES  
 TO: UP 16153-PFSF UT POTENTIAL: 284.00

MILEAGE SUMMARY BY RAILROAD		A-M	B-M	A-BR	B-BR	OTHER
UP	259.0	227.0	.0	.0	32.0	.0
TOTAL		259.0	227.0	.0	.0	32.0

MILEAGE SUMMARY BY STATE  
 259.0-UT

RR	NODE	STATE	DIST
UP	13619-BLACK ROCK	UT	0.
UP	13630-LYNN DYLL	UT	71.
UP	13594-GARFIELD	UT	174.
UP	16153-PFSF	UT	259.

POPULATION DENSITY FROM: UP 13619-BLACK ROCK UT  
 TO: UP 16153-PFSF UT

----- MILEAGE WITHIN DENSITY LEVELS -----												
	<0.0	5.0	22.7	59.7	139	326	821	1861	3326	5815		
St Miles	0	-5.0	-22.7	-59.7	-139	-326	-821	-1861	-3326	-5815	-9996	>9996
-----												
UT 259.0	100.8	120.5	27.5	4.6	2.2	.9	.7	1.4	.5	.0	.0	.0
Totals	259.0	100.8	120.5	27.5	4.6	2.2	.9	.7	1.4	.5	.0	.0
Percentages	38.9	46.5	10.6	1.8	.9	.3	.3	.5	.2	.0	.0	.0

Basis: 1990 Census data

RADTRAN Input Data Rural Suburban Urban

Weighted Population

People/sq. mi.	4.3	1076.3	.0
People/sq. km.	1.6	415.5	.0

Distance

			Total
Miles	255.5	3.5	.0
Kilometers	411.3	5.6	.0
Percentage	98.7	1.3	.0

Basis (people/sq. mi.) <139 139-3326 >3326

Note: Due to rounding, the sum of the mileages in the individual population categories may not equal the total mileage shown on this report.

### C.5.4 Route Between Carlin, Nevada, and the Utah PFSF Site

ROUTE FROM: UP 14792-CARLIN NV LENGTH: 248.0 MILES  
TO: UP 16153-PFSF UT POTENTIAL: 275.20

MILEAGE SUMMARY BY RAILROAD

	UP	A-M	B-M	A-BR	B-BR	OTHER
	248.0	216.0	.0	.0	32.0	.0
TOTAL	248.0	216.0	.0	.0	32.0	.0

MILEAGE SUMMARY BY STATE

162.0-NV	86.0-UT
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RR	NODE	STATE	DIST
UP	14792-CARLIN	NV	0.
UP	14793-ELKO	NV	20.
UP	14794-ALAZON	NV	71.
UP	14795-WELLS	NV	75.
UP	14797-SHAFTER	NV	121.
UP	16153-PFSF	UT	248.

POPULATION DENSITY FROM: UP 14792-CARLIN NV  
TO: UP 16153-PFSF UT

----- MILEAGE WITHIN DENSITY LEVELS -----

	<0.0	5.0	22.7	59.7	139	326	821	1861	3326	5815
St Miles	0	-5.0	-22.7	-59.7	-139	-326	-821	-1861	-3326	-5815
NV	162.0	21.9	109.1	16.6	6.6	4.8	1.3	1.2	.5	.0
UT	86.0	81.7	3.1	1.2	.0	.0	.0	.0	.0	.0
Totals	248.0	103.7	112.1	17.8	6.6	4.8	1.3	1.2	.5	.0
Percentages	41.8	45.2	7.2	2.7	2.0	.5	.5	.2	.0	.0

Basis: 1990 Census data

RADTRAN Input Data Rural Suburban Urban

#### Weighted Population

People/sq. mi.	5.2	553.6	.0
People/sq. km.	2.0	213.7	.0

#### Distance

			Total
Miles	245.1	2.9	.0
Kilometers	394.4	4.7	.0
Percentage	98.8	1.2	.0

Basis (people/sq. mi.) <139 139-3326 >3326

Note: Due to rounding, the sum of the mileages in the individual population categories may not equal the total mileage shown on this report.

### C.5.5 Route Between Pocatello, Idaho, and the Utah PFSF Site

ROUTE FROM: UP 13370-POCATELLO ID LENGTH: 269.1 MILES  
TO: UP 16153-PFSF UT POTENTIAL: 310.24

MILEAGE SUMMARY BY RAILROAD		A-M	B-M	A-BR	B-BR	OTHER
UP	269.1	123.6	113.5	.0	32.0	.0
TOTAL		269.1	123.6	113.5	.0	32.0

MILEAGE SUMMARY BY STATE  
72.0-ID 197.1-UT

RR	NODE	STATE	DIST
UP	13370-POCATELLO	ID	0.
UP	13369-MC CAMMON	ID	23.
UP	13568-OGDEN	UT	137.
UP	13595-SALT LAKE CITY	UT	172.
UP	13594-GARFIELD	UT	184.
UP	16153-PFSF	UT	269.

POPULATION DENSITY FROM: UP 13370-POCATELLO ID  
TO: UP 16153-PFSF UT

----- MILEAGE WITHIN DENSITY LEVELS -----

	<0.0	5.0	22.7	59.7	139	326	821	1861	3326	5815
St Miles	0	-5.0	-22.7	-59.7	-139	-326	-821	-1861	-3326	-5815
ID	72.0	4.5	13.4	42.2	8.7	1.3	.8	.3	.7	.0
UT	197.1	80.8	40.9	14.4	16.4	9.1	7.3	7.2	7.4	6.5
Totals	269.1	85.3	54.3	56.6	25.1	10.5	8.0	7.5	8.1	6.5
Percentages	31.7	20.2	21.0	9.3	3.9	3.0	2.8	3.0	2.4	2.1

Basis: 1990 Census data

RADTRAN Input Data Rural Suburban Urban

Weighted Population

People/sq. mi.	12.9	1124.7	5270.8
People/sq. km.	5.0	434.2	2035.0

Distance

			Total
Miles	231.9	30.1	7.1
Kilometers	373.1	48.5	11.4
Percentage	86.2	11.2	2.6

Basis (people/sq. mi.) <139 139-3326 >3326

Note: Due to rounding, the sum of the mileages in the individual population categories may not equal the total mileage shown on this report.

## C.6 Interline Output for Routes Near the Fremont County, Wyoming, Site

### C.6.1 Route Between Crandall, Wyoming, and the Alternative PFSF Site

ROUTE FROM: UP 11264-CRANDALL WY LENGTH: 219.9 MILES  
TO: BNSF 13499-BONNEVILLE WY POTENTIAL: 544.22

MILEAGE SUMMARY BY RAILROAD		A-M	B-M	A-BR	B-BR	OTHER
BNSF	100.0	.0	100.0	.0	.0	.0
UP	119.9	48.0	64.4	.0	7.5	.0
TOTAL	219.9	48.0	164.4	.0	7.5	.0

MILEAGE SUMMARY BY STATE  
219.9-WY

RR	NODE	STATE	DIST
UP	11264-CRANDALL	WY	0.
UP	13474-CASPER	WY	120.
----- TRANSFER			
BNSF	13474-CASPER	WY	120.
BNSF	13499-BONNEVILLE	WY	220.

POPULATION DENSITY FROM: UP 11264-CRANDALL WY  
TO: BNSF 13499-BONNEVILLE WY

----- MILEAGE WITHIN DENSITY LEVELS -----												
	<0.0	5.0	22.7	59.7	139	326	821	1861	3326	5815		
St Miles	0	-5.0	-22.7	-59.7	-139	-326	-821	-1861	-3326	-5815	-9996	>9996

WY	219.9	31.9	153.8	16.4	4.4	1.2	3.1	4.3	1.4	.7	1.2	1.3	.2
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Totals

219.9	31.9	153.8	16.4	4.4	1.2	3.1	4.3	1.4	.7	1.2	1.3	.2
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Percentages

14.5	70.0	7.5	2.0	.5	1.4	2.0	.7	.3	.5	.6	.1
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Basis: 1990 Census data

RADTRAN Input Data	Rural	Suburban	Urban
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Weighted Population

People/sq. mi.	4.4	719.2	6584.6
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People/sq. km.	1.7	277.7	2542.3
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Distance

Miles	207.7	9.5	2.6	Total
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Kilometers	334.3	15.3	4.3	353.9
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Percentage	94.5	4.3	1.2
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Basis (people/sq. mi.)	<139	139-3326	>3326
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Note: Due to rounding, the sum of the mileages in the individual population categories may not equal the total mileage shown on this report.

## C.6.2 Route Between Mitchell, Nebraska, and the Alternative PFSF Site

ROUTE FROM: BNSF 11265-MITCHELL NE LENGTH: 250.4 MILES  
TO: BNSF 13499-BONNEVILLE WY POTENTIAL: 226.62

MILEAGE SUMMARY BY RAILROAD	A-M	B-M	A-BR	B-BR	OTHER
BNSF 250.4	86.0	164.4	.0	.0	.0
TOTAL 250.4	86.0	164.4	.0	.0	.0

MILEAGE SUMMARY BY STATE  
250.4-WY

RR	NODE	STATE	DIST
BNSF	11265-MITCHELL	NE	0.
BNSF	13470-GUERNSEY	WY	41.
BNSF	13474-CASPER	WY	150.
BNSF	13499-BONNEVILLE	WY	250.

POPULATION DENSITY FROM: BNSF 11265-MITCHELL NE  
TO: BNSF 13499-BONNEVILLE WY

----- MILEAGE WITHIN DENSITY LEVELS -----												
	<0.0	5.0	22.7	59.7	139	326	821	1861	3326	5815		
St Miles	0	-5.0	-22.7	-59.7	-139	-326	-821	-1861	-3326	-5815	-9996	>9996
WY 250.4	41.1	163.6	21.9	6.4	3.5	4.7	4.3	1.4	.7	1.2	1.3	.2
Totals	250.4	41.1	163.6	21.9	6.4	3.5	4.7	4.3	1.4	.7	1.2	1.3
Percentages	16.4	65.3	8.8	2.6	1.4	1.9	1.7	.6	.3	.5	.5	.1

Basis: 1990 Census data

RADTRAN Input Data Rural Suburban Urban

Weighted Population			
People/sq. mi.	5.6	650.1	6584.6
People/sq. km.	2.2	251.0	2542.3

Distance			Total
Miles	236.6	11.1	2.6
Kilometers	380.8	17.9	4.3
Percentage	94.5	4.4	1.1

Basis (people/sq. mi.) <139 139-3326 >3326

Note: Due to rounding, the sum of the mileages in the individual population categories may not equal the total mileage shown on this report.

### C.6.3 Route Between Gibson, Wyoming, and the Alternative PFSF Site

ROUTE FROM: BNSF 13468-GIBSON WY LENGTH: 230.4 MILES  
 TO: BNSF 13499-BONNEVILLE WY POTENTIAL: 215.26

MILEAGE SUMMARY BY RAILROAD

		A-M	B-M	A-BR	B-BR	OTHER
BNSF	230.4	37.0	193.4	.0	.0	.0
TOTAL	230.4	37.0	193.4	.0	.0	.0

MILEAGE SUMMARY BY STATE  
 230.4-WY

RR	NODE	STATE	DIST
BNSF	13468-GIBSON	WY	0.
BNSF	13474-CASPER	WY	130.
BNSF	13499-BONNEVILLE	WY	230.

POPULATION DENSITY FROM: BNSF 13468-GIBSON WY  
 TO: BNSF 13499-BONNEVILLE WY

----- MILEAGE WITHIN DENSITY LEVELS -----

	<0.0	5.0	22.7	59.7	139	326	821	1861	3326	5815
St Miles	0	-5.0	-22.7	-59.7	-139	-326	-821	-1861	-3326	-5815
WY 230.4	32.4	148.4	26.9	7.8	2.4	3.5	4.3	1.4	.7	1.2
Totals	230.4	32.4	148.4	26.9	7.8	2.4	3.5	4.3	1.4	.7
Percentages	14.0	64.4	11.7	3.4	1.0	1.5	1.9	.6	.3	.5

Basis: 1990 Census data

RADTRAN Input Data Rural Suburban Urban

Weighted Population

People/sq. mi.	6.0	701.4	6584.6
People/sq. km.	2.3	270.8	2542.3

Distance			Total
Miles	217.9	9.9	2.6
Kilometers	350.6	15.9	4.3
Percentage	94.6	4.3	1.1

Basis (people/sq. mi.) <139 139-3326 >3326

Note: Due to rounding, the sum of the mileages in the individual population categories may not equal the total mileage shown on this report.

### C.6.4 Route Between Mossmain, Montana, and the Alternative PFSF Site

ROUTE FROM: BNSF 13210-MOSSMAIN MT LENGTH: 226.9 MILES  
TO: BNSF 13499-BONNEVILLE WY POTENTIAL: 217.82

MILEAGE SUMMARY BY RAILROAD		A-M	B-M	A-BR	B-BR	OTHER
BNSF	226.9	.0	226.9	.0	.0	.0
TOTAL		226.9	.0	226.9	.0	.0

MILEAGE SUMMARY BY STATE  
56.0-MT 170.9-WY

RR	NODE	STATE	DIST
BNSF	13210-MOSSMAIN	MT	0.
BNSF	13211-LAUREL	MT	4.
BNSF	13499-BONNEVILLE	WY	227.

POPULATION DENSITY FROM: BNSF 13210-MOSSMAIN MT  
TO: BNSF 13499-BONNEVILLE WY

----- MILEAGE WITHIN DENSITY LEVELS -----												
	<0.0	5.0	22.7	59.7	139	326	821	1861	3326	5815		
St Miles	0	-5.0	-22.7	-59.7	-139	-326	-821	-1861	-3326	-5815	-9996	>9996
-----												
MT	56.0	.0	37.0	9.2	7.1	1.3	.5	.2	.6	.0	.0	.0
WY	170.9	21.1	106.4	32.8	6.6	2.0	.3	.2	.5	.4	.6	.0
Totals	226.9	21.1	143.4	42.0	13.7	3.3	.8	.5	1.1	.4	.6	.0
Percentages	9.3	63.2	18.5	6.0	1.4	.3	.2	.5	.2	.3	.0	.0

Basis: 1990 Census data

RADTRAN Input Data Rural Suburban Urban

Weighted Population  
People/sq. mi. 8.2 1096.1 4570.5  
People/sq. km. 3.2 423.2 1764.7

Distance				Total
Miles	223.5	2.8	.6	226.9
Kilometers	359.7	4.4	1.0	365.2
Percentage	98.5	1.2	.3	

Basis (people/sq. mi.) <139 139-3326 >3326

Note: Due to rounding, the sum of the mileages in the individual population categories may not equal the total mileage shown on this report.

## C.7 Interline Output for the Route Between the Maine Yankee Nuclear Plant (in Maine) and Skull Valley, Utah

INTERLINE 5.10 NETWORK 14.00

ROUTE FROM: <C3> 96-MAINE YANKEE NP ME LENGTH: 2781.3 MILES  
TO: UP 16153-PFSF UT POTENTIAL: 3778.4

MILEAGE SUMMARY BY RAILROAD		A-M	B-M	A-BR	B-BR	OTHER
CPRS	352.7	209.8	142.9	.0	.0	.0
NS	528.9	521.9	7.0	.0	.0	.0
UP	1575.7	1531.9	11.8	.0	32.0	.0
ST	293.0	.0	278.0	.0	15.0	.0
<C3>	31.0	.0	.0	.0	31.0	.0
TOTAL		2781.3	2263.6	439.7	.0	78.0

MILEAGE SUMMARY BY STATE		10.0-CO	150.9-IL	148.4-IN	336.2-IA	100.9-ME
151.0-MA	451.5-NE	31.4-NH	460.4-NY	245.9-OH		
44.0-PA	206.1-UT	6.0-VT	438.6-WY			

RR	NODE	STATE	DIST
<C3>	96-MAINE YANKEE NP	ME	0.
<C3>	121-BRUNSWICK	ME	31.
- - - - - TRANSFER			
ST	121-BRUNSWICK	ME	31.
ST	135-YARMOUTH JCT	ME	45.
ST	132-PORTLAND	ME	61.
ST	142-DOVER	NH	112.
ST	291-LAWRENCE	MA	147.
ST	299-LOWELL	MA	160.
ST	423-AYER	MA	177.
ST	432-FITCHBURG	MA	190.
ST	447-MILLERS FALLS	MA	237.
ST	454-GREENFIELD	MA	243.
ST	694-MECHANICVILLE	NY	324.
- - - - - TRANSFER			
CPRS	694-MECHANICVILLE	NY	324.
CPRS	706-SCHENECTADY	NY	337.
CPRS	1037-BINGHAMTON	NY	467.
CPRS	1039-WAVERLY	NY	507.
CPRS	1008-ELMIRA	NY	525.
CPRS	1009-CORNING	NY	543.
CPRS	881-NIAGARA JCT	NY	665.
CPRS	880-BUFFALO	NY	677.
- - - - - TRANSFER			
NS	880-BUFFALO	NY	677.
NS	938-DUNKIRK	NY	718.
NS	942-WESTFIELD	NY	742.
NS	968-ERIE	PA	771.
NS	2652-CONNEAUT	OH	795.
NS	2649-ASHTABULA	OH	809.
NS	2727-PAINESVILLE	OH	835.
NS	2728-CLEVELAND	OH	865.
NS	2633-ELYRIA	OH	892.
NS	14985-OAK HARBOR	OH	949.
NS	3442-TOLEDO	OH	971.
NS	3526-GOSHEN	IN	1093.
NS	3525-ELKHART	IN	1103.
NS	4022-SOUTH BEND	IN	1118.
NS	3969-LA PORTE	IN	1144.

NS	4067-PORTER	IN	1163.
NS	4069-MILLER	IN	1173.
NS	4070-GARY	IN	1178.
NS	4073-CLARKE	IN	1182.
NS	4074-INDIANA HARBOR	IN	1185.
NS	4035-WHITING LAKE FROIN		1188.
NS	4232-SOUTH CHICAGO	IL	1193.
NS	4217-CHICAGO	IL	1206.
----- TRANSFER -----			
UP	4217-CHICAGO	IL	1206.
UP	4234-PROVISO	IL	1220.
UP	4214-WEST CHICAGO	IL	1235.
UP	4311-DE KALB	IL	1262.
UP	4324-NELSON	IL	1307.
UP	10304-CLINTON	IA	1342.
UP	10289-CEDAR RAPIDS	IA	1423.
UP	10265-MARSHALLTOWN	IA	1492.
UP	10246-NEVADA	IA	1519.
UP	10271-AMES	IA	1530.
UP	10177-ARION	IA	1628.
UP	10176-MISSOURI VALLEY	IA	1664.
UP	10198-CALIFORNIA JCT	IA	1670.
UP	11340-FREMONT	NE	1698.
UP	11473-CENTRAL CITY	NE	1785.
UP	11406-GRAND ISLAND	NE	1807.
UP	11410-GIBBON	NE	1833.
UP	11352-NORTH PLATTE	NE	1952.
UP	11358-O FALLONS	NE	1964.
UP	13703-JULESBURG	CO	2032.
UP	11287-SIDNEY	NE	2075.
UP	13465-CHEYENNE	WY	2178.
UP	13462-LARAMIE	WY	2230.
UP	13494-GRANGER	WY	2506.
UP	13568-OGDEN	UT	2649.
UP	13595-SALT LAKE CITY	UT	2684.
UP	13594-GARFIELD	UT	2696.
UP	16153-PFSF	UT	2781.

POPULATION DENSITY FROM: <C3> 96-MAINE YANKEE NP ME  
TO: UP 16153-PFSF UT

----- MILEAGE WITHIN DENSITY LEVELS -----												
		<0.0	5.0	22.7	59.7	139	326	821	1861	3326	5815	
St Miles	0	-5.0	-22.7	-59.7	-139	-326	-821	-1861	-3326	-5815	-9996	>9996
CO	10.0	.4	6.6	.3	.4	.5	.6	1.2	.0	.0	.0	.0
IL	150.9	7.8	11.3	24.1	20.5	12.5	10.7	10.7	10.3	8.5	10.4	11.1
IN	148.4	8.7	24.7	13.3	25.5	13.9	13.7	14.6	12.8	10.7	6.8	3.0
IA	336.2	15.7	79.0	83.3	67.2	29.7	20.6	12.1	8.6	9.4	6.3	3.1
ME	100.9	17.6	3.2	4.4	5.1	10.6	37.1	16.7	3.7	1.0	.3	.2
MA	151.0	2.6	3.8	5.5	29.0	15.5	29.9	26.4	22.5	6.4	4.1	2.2
NE	451.5	58.4	191.9	111.4	37.8	19.7	11.1	7.0	6.5	4.7	2.3	.7
NH	31.4	1.1	.2	.6	1.5	4.2	10.4	6.7	5.3	1.1	.4	.0
NY	460.4	45.8	37.1	44.6	100.3	99.0	57.7	30.3	21.8	12.2	5.8	3.7
OH	245.9	27.3	5.5	9.1	23.5	32.4	37.7	36.5	33.3	18.1	13.8	7.3
PA	44.0	1.0	1.3	.3	1.8	9.3	13.3	4.8	4.4	2.2	3.6	1.7
UT	206.1	67.5	76.3	26.7	2.9	2.4	2.7	4.8	7.0	7.2	6.4	2.0
VT	6.0	.0	.0	.0	.0	6.0	.0	.0	.0	.0	.0	.0
WY	438.6	112.5	276.3	18.0	18.0	3.8	2.0	2.8	2.2	1.3	1.2	.4
Totals												
	2781.3	3366.4	717.3	341.8	333.5	259.5	247.3	174.5	138.4	82.6	61.3	35.3

## Percentages

13.2 25.8 12.3 12.0 9.3 8.9 6.3 5.0 3.0 2.2 1.3 .8

Basis: 1990 Census data

RADTRAN Input Data Rural Suburban Urban

## Weighted Population

People/sq. mi. 22.8 867.1 6609.1

People/sq. km. 8.8 334.8 2551.8

## Distance

Miles 2018.4 642.8 120.0 Total 2781.3

Kilometers 3248.2 1034.5 193.1 4475.9

Percentage 72.6 23.1 4.3

Basis (people/sq. mi.) &lt;139 139-3326 &gt;3326

Note: Due to rounding, the sum of the mileages in the individual population categories may not equal the total mileage shown on this report.

## C.8 Interline Output for the Route Between the Maine Yankee Nuclear Plant (in Maine) and Timpie, Utah

INTERLINE 5.10 NETWORK 14.00

ROUTE FROM: <C3> 96-MAINE YANKEE NP ME LENGTH: 2727.3 MILES  
TO: UP 13516-TIMPIE UT POTENTIAL: 3628.4

MILEAGE SUMMARY BY RAILROAD		A-M	B-M	A-BR	B-BR	OTHER
CPRS	352.7	209.8	142.9	.0	.0	.0
NS	528.9	521.9	7.0	.0	.0	.0
UP	1521.7	1509.9	11.8	.0	.0	.0
ST	293.0	.0	278.0	.0	15.0	.0
<C3>	31.0	.0	.0	.0	31.0	.0
TOTAL		2727.3	2241.6	439.7	.0	46.0

MILEAGE SUMMARY BY STATE		10.0-CO	150.9-IL	148.4-IN	336.2-IA	100.9-ME
151.0-MA	451.5-NE	31.4-NH	460.4-NY	245.9-OH		
44.0-PA	152.1-UT	6.0-VT	438.6-WY			

RR	NODE	STATE	DIST
<C3>	96-MAINE YANKEE NP	ME	0.
<C3>	121-BRUNSWICK	ME	31.
----- TRANSFER			
ST	121-BRUNSWICK	ME	31.
ST	135-YARMOUTH JCT	ME	45.
ST	132-PORTLAND	ME	61.
ST	142-DOVER	NH	112.
ST	291-LAWRENCE	MA	147.
ST	299-LOWELL	MA	160.
ST	423-AYER	MA	177.
ST	432-FITCHBURG	MA	190.
ST	447-MILLERS FALLS	MA	237.
ST	454-GREENFIELD	MA	243.
ST	694-MECHANICVILLE	NY	324.
----- TRANSFER			
CPRS	694-MECHANICVILLE	NY	324.
CPRS	706-SCHENECTADY	NY	337.
CPRS	1037-BINGHAMTON	NY	467.
CPRS	1039-WAVERLY	NY	507.
CPRS	1008-ELMIRA	NY	525.
CPRS	1009-CORNING	NY	543.
CPRS	881-NIAGARA JCT	NY	665.
CPRS	880-BUFFALO	NY	677.
----- TRANSFER			
NS	880-BUFFALO	NY	677.
NS	938-DUNKIRK	NY	718.
NS	942-WESTFIELD	NY	742.
NS	968-ERIE	PA	771.
NS	2652-CONNEAUT	OH	795.
NS	2649-ASHTABULA	OH	809.
NS	2727-PAINESVILLE	OH	835.
NS	2728-CLEVELAND	OH	865.
NS	2633-ELYRIA	OH	892.
NS	14985-OAK HARBOR	OH	949.
NS	3442-TOLEDO	OH	971.
NS	3526-GOSHEN	IN	1093.
NS	3525-ELKHART	IN	1103.
NS	4022-SOUTH BEND	IN	1118.
NS	3969-LA PORTE	IN	1144.

NS	4067-PORTER	IN	1163.
NS	4069-MILLER	IN	1173.
NS	4070-GARY	IN	1178.
NS	4073-CLARKE	IN	1182.
NS	4074-INDIANA HARBOR	IN	1185.
NS	4035-WHITING LAKE FROIN		1188.
NS	4232-SOUTH CHICAGO	IL	1193.
NS	4217-CHICAGO	IL	1206.
----- TRANSFER			
UP	4217-CHICAGO	IL	1206.
UP	4234-PROVISO	IL	1220.
UP	4214-WEST CHICAGO	IL	1235.
UP	4311-DE KALB	IL	1262.
UP	4324-NELSON	IL	1307.
UP	10304-CLINTON	IA	1342.
UP	10289-CEDAR RAPIDS	IA	1423.
UP	10265-MARSHALLTOWN	IA	1492.
UP	10246-NEVADA	IA	1519.
UP	10271-AMES	IA	1530.
UP	10177-ARION	IA	1628.
UP	10176-MISSOURI VALLEY	IA	1664.
UP	10198-CALIFORNIA JCT	IA	1670.
UP	11340-FREMONT	NE	1698.
UP	11473-CENTRAL CITY	NE	1785.
UP	11406-GRAND ISLAND	NE	1807.
UP	11410-GIBBON	NE	1833.
UP	11352-NORTH PLATTE	NE	1952.
UP	11358-O FALLONS	NE	1964.
UP	13703-JULESBURG	CO	2032.
UP	11287-SIDNEY	NE	2075.
UP	13465-CHEYENNE	WY	2178.
UP	13462-LARAMIE	WY	2230.
UP	13494-GRANGER	WY	2506.
UP	13568-OGDEN	UT	2649.
UP	13595-SALT LAKE CITY	UT	2684.
UP	13594-GARFIELD	UT	2696.
UP	13516-TIMPIE	UT	2727.

POPULATION DENSITY FROM: <C3> 96-MAINE YANKEE NP ME  
 TO: UP 13516-TIMPIE UT

----- MILEAGE WITHIN DENSITY LEVELS -----												
St Miles	0	<0.0	5.0	22.7	59.7	139	326	821	1861	3326	5815	
		-5.0	-22.7	-59.7	-139	-326	-821	-1861	-3326	-5815	-9996	>9996
CO	10.0	.4	6.6	.3	.4	.5	.6	1.2	.0	.0	.0	.0
IL	150.9	7.8	11.3	24.1	20.5	12.5	10.7	10.7	10.3	8.5	10.4	11.1
IN	148.4	8.7	24.7	13.3	25.5	13.9	13.7	14.6	12.8	10.7	6.8	3.0
IA	336.2	15.7	79.0	83.3	67.2	29.7	20.6	12.1	8.6	9.4	6.3	3.1
ME	100.9	17.6	3.2	4.4	5.1	10.6	37.1	16.7	3.7	1.0	.3	.2
MA	151.0	2.6	3.8	5.5	29.0	15.5	29.9	26.4	22.5	6.4	4.1	2.2
NE	451.5	58.4	191.9	111.4	37.8	19.7	11.1	7.0	6.5	4.7	2.3	.7
NH	31.4	1.1	.2	.6	1.5	4.2	10.4	6.7	5.3	1.1	.4	.0
NY	460.4	45.8	37.1	44.6	100.3	99.0	57.7	30.3	21.8	12.2	5.8	3.7
OH	245.9	27.3	5.5	9.1	23.5	32.4	37.7	36.5	33.3	18.1	13.8	7.3
PA	44.0	1.0	1.3	.3	1.8	9.3	13.3	4.8	4.4	2.2	3.6	1.7
UT	152.1	13.5	76.3	26.7	2.9	2.4	2.7	4.8	7.0	7.2	6.4	2.0
VT	6.0	.0	.0	.0	.0	6.0	.0	.0	.0	.0	.0	.0
WY	438.6	112.5	276.3	18.0	18.0	3.8	2.0	2.8	2.2	1.3	1.2	.4
Totals												
	2727.3	3312.4	717.3	341.8	333.5	259.5	247.3	174.5	138.4	82.6	61.3	35.3

## Percentages

11.5	26.3	12.5	12.2	9.5	9.1	6.4	5.1	3.0	2.2	1.3	.9
------	------	------	------	-----	-----	-----	-----	-----	-----	-----	----

Basis: 1990 Census data

RADTRAN Input Data	Rural	Suburban	Urban
--------------------	-------	----------	-------

## Weighted Population

People/sq. mi.	23.4	867.1	6609.1
People/sq. km.	9.1	334.8	2551.8

## Distance

				Total
Miles	1964.4	642.8	120.0	2727.3
Kilometers	3161.3	1034.5	193.1	4389.0
Percentage	72.0	23.6	4.4	

Basis (people/sq. mi.)	<139	139-3326	>3326
------------------------	------	----------	-------

Note: Due to rounding, the sum of the mileages in the individual population categories may not equal the total mileage shown on this report.

## C.9 Interline Output for the Route Between Timpie, Utah, and the PFSF Site

```

                                HIGHWAY  3.4                                Page    1
*****
TIMPIE              I80  X77  UT              to              PFSF              UT
*****

      Leaving : 1/28/99 at  9:44 MST Arriving: 1/28/99 at 10:19 MST
      Total Road Time:  0:35              Total Miles:   26.0

Route Type: C with 2 Driver(s)   Time Bias:   .70  Mile Bias:   .30  Toll Bias:  1.00

The following constraints are in effect:
Route avoids links prohibiting truck use
Route avoids ferry crossings

Mileage by Highway Sign Type:
Interstate:   .0   U.S.:   .0   State:   .0   Turnpike:   .0
County:      .0   Local:  26.0   Other:   .0

Mileage by Highway Lane Type:
Limited Access Multilane:   .0   Limited Access Single Lane:   .0
Multilane Divided:         .0   Multilane Undivided:         .0
Principal Highways:        .0   Through Highways:         .0   Other:   26.0

State Mileage
-----
UT      26.0

```

```

                                HIGHWAY  3.4                                Page    2
*****
TIMPIE              I80  X77  UT              to              PFSF              UT
*****

      .0              TIMPIE              I80  X77  UT              .0   0:00   1/28/99 at  9:44
      26.0 LOCAL      PFSF              UT              26.0   0:35   1/28/99 at 10:19

```

HIGHWAY 3.4 Page 3

\*\*\*\*\*

TIMPIE                      I80 X77 UT                      to                      PFSF                      UT

\*\*\*\*\*

		MILEAGE WITHIN DENSITY LEVELS							
		<0.0	0	5.0	22.7	59.7	139	326	
State	Miles	-5.0	-22.7	-59.7	-139	-326	-821	>821	
UT	26.0	7.9	14.2	3.9	.0	.0	.0	.0	.0
Route									
Total	26.0	7.9	14.2	3.9	.0	.0	.0	.0	.0
Percentages									
		30.2	54.7	15.1	.0	.0	.0	.0	.0

Basis: 1990 Census

RADTRAN Input Data	Rural	Suburban	Urban	
Weighted Population				
People/sq. mi.	3.5	.0	.0	
People/sq. km.	1.3	.0	.0	
Distance				Total
Miles	26.0	.0	.0	26.0
Kilometers	41.8	.0	.0	41.8
Percentage	100.0	.0	.0	
Basis (people/sq. mi.)	<139	139-3326	>3326	1990 Census

Note: Due to rounding, the sum of the mileages in the individual population categories may not equal the total mileage shown on this report.

## C.10 Interline Output for the Route Between Skull Valley, Utah, and the Utah-Nevada Border

INTERLINE 5.10 NETWORK 14.00

ROUTE FROM: UP 16153-PFSF UT LENGTH: 353.7 MILES  
TO: UP 13615-UVADA UT POTENTIAL: 359.96

MILEAGE SUMMARY BY RAILROAD

	UP	A-M	B-M	A-BR	B-BR	OTHER
	353.7	321.7	.0	.0	32.0	.0
TOTAL	353.7	321.7	.0	.0	32.0	.0

MILEAGE SUMMARY BY STATE  
353.7-UT

RR	NODE	STATE	DIST
UP	16153-PFSF	UT	0.
UP	13594-GARFIELD	UT	85.
UP	13630-LYNNDYL	UT	188.
UP	13615-UVADA	UT	354.

POPULATION DENSITY FROM: UP 16153-PFSF UT  
TO: UP 13615-UVADA UT

----- MILEAGE WITHIN DENSITY LEVELS -----

St Miles	0	<0.0	5.0	22.7	59.7	139	326	821	1861	3326	5815
	-5.0	-22.7	-59.7	-139	-326	-821	-1861	-3326	-5815	-9996	>9996

-----

UT 353.7112.5 203.5 27.5 4.6 2.2 .9 .7 1.4 .5 .0 .0 .0

Totals  
353.7112.5 203.5 27.5 4.6 2.2 .9 .7 1.4 .5 .0 .0 .0

Percentages  
31.8 57.5 7.8 1.3 .6 .2 .2 .4 .1 .0 .0 .0

Basis: 1990 Census data

RADTRAN Input Data Rural Suburban Urban

Weighted Population

People/sq. mi.	3.7	1076.3	.0
People/sq. km.	1.4	415.5	.0

Distance				Total
Miles	350.2	3.5	.0	353.7
Kilometers	563.7	5.6	.0	569.2
Percentage	99.0	1.0	.0	

Basis (people/sq. mi.) <139 139-3326 >3326

Note: Due to rounding, the sum of the mileages in the individual population categories may not equal the total mileage shown on this report.

## C.11 Interline Output for the Route Between Timpie, Utah, and the Utah-Nevada Border

INTERLINE 5.10 NETWORK 14.00

ROUTE FROM: UP 13516-TIMPIE UT LENGTH: 299.7 MILES  
TO: UP 13615-UVADA UT POTENTIAL: 239.76

MILEAGE SUMMARY BY RAILROAD

	UP	A-M	B-M	A-BR	B-BR	OTHER
	299.7	299.7	.0	.0	.0	.0
TOTAL	299.7	299.7	.0	.0	.0	.0

MILEAGE SUMMARY BY STATE  
299.7-UT

RR	NODE	STATE	DIST
UP	13516-TIMPIE	UT	0.
UP	13594-GARFIELD	UT	31.
UP	13630-LYNNDYL	UT	134.
UP	13615-UVADA	UT	300.

POPULATION DENSITY FROM: UP 13516-TIMPIE UT  
TO: UP 13615-UVADA UT

----- MILEAGE WITHIN DENSITY LEVELS -----

St Miles	0	<0.0	5.0	22.7	59.7	139	326	821	1861	3326	5815
	-5.0	-22.7	-59.7	-139	-326	-821	-1861	-3326	-5815	-9996	>9996

-----

UT 299.7 58.5 203.5 27.5 4.6 2.2 .9 .7 1.4 .5 .0 .0 .0

Totals  
299.7 58.5 203.5 27.5 4.6 2.2 .9 .7 1.4 .5 .0 .0 .0

Percentages  
19.5 67.9 9.2 1.5 .7 .3 .2 .5 .2 .0 .0 .0

Basis: 1990 Census data

RADTRAN Input Data Rural Suburban Urban

Weighted Population

People/sq. mi.	4.4	1076.3	.0
People/sq. km.	1.7	415.5	.0

Distance				Total
Miles	296.2	3.5	.0	299.7
Kilometers	476.8	5.6	.0	482.3
Percentage	98.8	1.2	.0	

Basis (people/sq. mi.) <139 139-3326 >3326

Note: Due to rounding, the sum of the mileages in the individual population categories may not equal the total mileage shown on this report.

## C.12 Interline Output for the Route Between the Maine Yankee Nuclear Plant and the Wyoming Site

INTERLINE 5.10 NETWORK 14.00

ROUTE FROM: <C3> 96-MAINE YANKEE NP ME LENGTH: 2440.2 MILES  
TO: BNSF 13499-BONNEVILLE WY POTENTIAL: 3372.5

MILEAGE SUMMARY BY RAILROAD		A-M	B-M	A-BR	B-BR	OTHER
BNSF	1225.9	1061.5	164.4	.0	.0	.0
CPRS	352.7	209.8	142.9	.0	.0	.0
NS	517.6	517.6	.0	.0	.0	.0
IHB	20.0	20.0	.0	.0	.0	.0
ST	293.0	.0	278.0	.0	15.0	.0
<C3>	31.0	.0	.0	.0	31.0	.0
TOTAL		2440.2	1808.9	585.3	.0	46.0

MILEAGE SUMMARY BY STATE		IA	ME	MA
203.5-IL	148.7-IN	286.0-IA	100.9-ME	151.0-MA
512.0-NE	31.4-NH	460.4-NY	245.9-OH	44.0-PA
6.0-VT	250.4-WY			

RR	NODE	STATE	DIST
<C3>	96-MAINE YANKEE NP	ME	0.
<C3>	121-BRUNSWICK	ME	31.
----- TRANSFER			
ST	121-BRUNSWICK	ME	31.
ST	135-YARMOUTH JCT	ME	45.
ST	132-PORTLAND	ME	61.
ST	142-DOVER	NH	112.
ST	291-LAWRENCE	MA	147.
ST	299-LOWELL	MA	160.
ST	423-AYER	MA	177.
ST	432-FITCHBURG	MA	190.
ST	447-MILLERS FALLS	MA	237.
ST	454-GREENFIELD	MA	243.
ST	694-MECHANICVILLE	NY	324.
----- TRANSFER			
CPRS	694-MECHANICVILLE	NY	324.
CPRS	706-SCHENECTADY	NY	337.
CPRS	1037-BINGHAMTON	NY	467.
CPRS	1039-WAVERLY	NY	507.
CPRS	1008-ELMIRA	NY	525.
CPRS	1009-CORNING	NY	543.
CPRS	881-NIAGARA JCT	NY	665.
CPRS	880-BUFFALO	NY	677.
----- TRANSFER			
NS	880-BUFFALO	NY	677.
NS	938-DUNKIRK	NY	718.
NS	942-WESTFIELD	NY	742.
NS	968-ERIE	PA	771.
NS	2652-CONNEAUT	OH	795.
NS	2649-ASHTABULA	OH	809.
NS	2727-PAINESVILLE	OH	835.
NS	2728-CLEVELAND	OH	865.
NS	2633-ELYRIA	OH	892.
NS	14985-OAK HARBOR	OH	949.
NS	3442-TOLEDO	OH	971.
NS	3526-GOSHEN	IN	1093.
NS	3525-ELKHART	IN	1103.
NS	4022-SOUTH BEND	IN	1118.

NS	3969-LA PORTE	IN	1144.
NS	4067-PORTER	IN	1163.
NS	4069-MILLER	IN	1173.
NS	4070-GARY	IN	1178.
NS	4073-CLARKE	IN	1182.
NS	4075-EAST CHICAGO	IN	1185.
NS	4076-HAMMOND	IN	1188.
NS	4228-BURNHAM / CALUMEIL		1190.
NS	4223-DOLTON / RIVERDAIL		1194.
----- TRANSFER			
IHB	4223-DOLTON / RIVERDAIL		1194.
IHB	4163-BLUE ISLAND	IL	1198.
IHB	4164-CHICAGO RIDGE	IL	1204.
IHB	4172-ARGO	IL	1210.
IHB	4170-LA GRANGE	IL	1214.
----- TRANSFER			
BNSF	4170-LA GRANGE	IL	1214.
BNSF	4190-AURORA	IL	1239.
BNSF	4478-GALESBURG	IL	1359.
BNSF	10381-BURLINGTON	IA	1401.
BNSF	10373-OTTUMWA	IA	1476.
BNSF	10367-ALBIA	IA	1499.
BNSF	10443-CRESTON	IA	1592.
BNSF	10435-PACIFIC JCT	IA	1674.
BNSF	11537-OREAPOLIS	NE	1683.
BNSF	11470-ASHLAND	NE	1708.
BNSF	11504-LINCOLN	NE	1731.
BNSF	11475-AURORA	NE	1808.
BNSF	11406-GRAND ISLAND	NE	1826.
BNSF	11289-ALLIANCE	NE	2101.
BNSF	11288-NORTHPORT	NE	2136.
BNSF	13470-GUERNSEY	WY	2231.
BNSF	13474-CASPER	WY	2340.
BNSF	13499-BONNEVILLE	WY	2440.

POPULATION DENSITY FROM: <C3> 96-MAINE YANKEE NP ME  
 TO: BNSF 13499-BONNEVILLE WY

----- MILEAGE WITHIN DENSITY LEVELS -----													
	<0.0	5.0	22.7	59.7	139	326	821	1861	3326	5815			
St Miles	0	-5.0	-22.7	-59.7	-139	-326	-821	-1861	-3326	-5815	-9996	>9996	
IL	203.5	14.1	41.1	42.0	26.5	15.4	9.1	8.3	11.9	12.5	14.6	6.1	2.0
IN	148.7	8.2	24.9	13.5	25.3	13.5	13.7	14.5	12.4	11.1	7.7	2.9	1.0
IA	286.0	12.5	87.0	110.0	25.0	14.4	7.7	8.0	9.9	7.1	3.7	.6	.0
ME	100.9	17.6	3.2	4.4	5.1	10.6	37.1	16.7	3.7	1.0	.3	.2	.9
MA	151.0	2.6	3.8	5.5	29.0	15.5	29.9	26.4	22.5	6.4	4.1	2.2	3.2
NE	512.0	20.0	265.2	120.8	46.6	21.1	13.0	8.7	7.4	3.5	3.3	2.0	.5
NH	31.4	1.1	.2	.6	1.5	4.2	10.4	6.7	5.3	1.1	.4	.0	.0
NY	460.4	45.8	37.1	44.6	100.3	99.0	57.7	30.3	21.8	12.2	5.8	3.7	2.1
OH	245.9	27.3	5.5	9.1	23.5	32.4	37.7	36.5	33.3	18.1	13.8	7.3	1.5
PA	44.0	1.0	1.3	.3	1.8	9.3	13.3	4.8	4.4	2.2	3.6	1.7	.4
VT	6.0	.0	.0	.0	.0	6.0	.0	.0	.0	.0	.0	.0	.0
WY	250.4	41.1	163.6	21.9	6.4	3.5	4.7	4.3	1.4	.7	1.2	1.3	.2
Totals													
	2440.2	191.2	632.8	372.8	291.0	244.9	234.1	165.1	134.1	75.7	58.4	28.0	11.7
Percentages													
	7.8	25.9	15.3	11.9	10.0	9.6	6.8	5.5	3.1	2.4	1.1	.5	
Basis: 1990 Census data													

RADTRAN Input Data      Rural Suburban      Urban

Weighted Population				
People/sq. mi.	24.9	862.6	6170.9	
People/sq. km.	9.6	333.0	2382.6	
Distance				
Miles	1732.8	609.0	98.2	Total 2440.2
Kilometers	2788.5	980.1	158.0	3927.0
Percentage	71.0	25.0	4.0	
Basis (people/sq. mi.)				
	<139	139-3326	>3326	

Note: Due to rounding, the sum of the mileages in the individual population categories may not equal the total mileage shown on this report.

## C.13 Interline Output for the Route Between the Wyoming Site and the Utah-Nevada Border

INTERLINE 5.10 NETWORK 14.00

ROUTE FROM: BNSF 13499-BONNEVILLE WY LENGTH: 1110.8 MILES  
TO: UP 13615-UVADA UT POTENTIAL: 1391.9

MILEAGE SUMMARY BY RAILROAD		A-M	B-M	A-BR	B-BR	OTHER
BNSF	323.4	37.0	286.4	.0	.0	.0
UP	787.4	787.4	.0	.0	.0	.0
TOTAL		1110.8	824.4	286.4	.0	.0

MILEAGE SUMMARY BY STATE  
389.8-UT 721.0-WY

RR	NODE	STATE	DIST
BNSF	13499-BONNEVILLE	WY	0.
BNSF	13474-CASPER	WY	100.
BNSF	13465-CHEYENNE	WY	323.
----- TRANSFER -----			
UP	13465-CHEYENNE	WY	323.
UP	13462-LARAMIE	WY	375.
UP	13494-GRANGER	WY	651.
UP	13568-OGDEN	UT	795.
UP	13595-SALT LAKE CITY	UT	830.
UP	13594-GARFIELD	UT	842.
UP	13630-LYNNDYL	UT	945.
UP	13615-UVADA	UT	1111.

POPULATION DENSITY FROM: BNSF 13499-BONNEVILLE WY  
TO: UP 13615-UVADA UT

----- MILEAGE WITHIN DENSITY LEVELS -----												
	<0.0	5.0	22.7	59.7	139	326	821	1861	3326	5815		
St Miles	0	-5.0	-22.7	-59.7	-139	-326	-821	-1861	-3326	-5815	-9996	>9996
UT 389.8	56.4	240.5	47.0	7.5	4.6	3.5	5.5	8.4	7.6	6.4	2.0	.2
WY 721.0	142.9	483.1	43.9	23.1	6.9	5.7	6.7	4.2	1.2	1.5	1.5	.2
Totals	1110.8	199.4	723.7	90.9	30.6	11.5	9.2	12.3	12.6	8.8	8.0	3.5
Percentages	17.9	65.1	8.2	2.8	1.0	.8	1.1	1.1	.8	.7	.3	.0

Basis: 1990 Census data

RADTRAN Input Data Rural Suburban Urban

Weighted Population  
People/sq. mi. 5.2 1141.9 5724.0  
People/sq. km. 2.0 440.9 2210.1

Distance				Total
Miles	1056.0	42.9	11.8	1110.8
Kilometers	1699.5	69.1	19.0	1787.6
Percentage	95.1	3.9	1.1	

Basis (people/sq. mi.) <139 139-3326 >3326

Note: Due to rounding, the sum of the mileages in the individual population categories may not equal the total mileage shown on this report.

## **C.14 References**

Johnson, P. E., et al. 1993. *INTERLINE 5.0, An Expanded Railroad Routing Model: Program Description, Methodology, and Revised Users Manual*, ORNL/TM-12090, Oak Ridge National Laboratory, Oak Ridge, Tenn.